

89. An intermammary artery access retractor comprising;  
a frame having a crossbar, a fixed retractor arm and a movable retractor arm, said movable arm being movable toward or away from the fixed arm;  
a standard retractor blade mounted on said fixed arm;  
an adjustable lifter blade mounted on said movable retractor arm;  
tilting means for tilting said retractor to lift a portion of a ribcage to provide improved access to the intermammary artery.

90. The retractor according to claim 89 in which said adjustable lifter blade comprises:  
blade mounting means;  
an adjustable lifter blade hingedly attached to said blade mounting means;  
angle adjusting means for adjusting the angle of retraction of said adjustable lifter blade;  
whereby said blade lifts an upper portion of the ribcage to provide improved access and visibility of the intermammary artery.

91. The retractor according to claim 90 in which said angle adjusting means comprises; a flange on said blade mounting means; and a screw in said flange engaging a surface of said hingedly mounted blade; whereby rotation of said screw adjusts the angle of said blade on said retractor.

92. The retractor according to claim 91 in which said adjustable lifter blade has a curved portion and a tongue portion; said tongue portion being tapered toward a tip.

93. The retractor according to claim 92 in which said tongue on said adjustable lifter blade has an oblique edge constructed to be aligned with the intermammary artery.

94. The retractor according to claim 89 in which said retractor tilting means comprises an adjustable support tower attached to a free end of said crossbar on said retractor frame for raising or

lowering the retractor frame to raise an upper portion of the ribcage to provide improved access And visibility of said intermammary artery.

95. The retractor according to claim 94 in which said adjustable support tower comprises a support bar mounted on a free end of said retractor crossbar:

a support shaft;

clamp means for clamping and adjustably positioning said support shaft on said support bar to raise or lower said retractor.

96. The retractor according to claim 95 including a footpad on an end of said support shaft.

97. The retractor according to claim 91 in which said retractor tilting means comprises an adjustable support tower attached to a free end of said crossbar on said retractor frame for raising or lowering the retractor frame to raise an upper portion of the ribcage to provide improved access and visibility of said intermammary artery.

98. The retractor according to claim 97 in which said adjustable support tower comprises a support bar mounted on a free end of said retractor crossbar;

a support shaft;

clamp means for clamping and adjustably positioning said support shaft on said support bar to raise or lower said retractor.

99. The retractor according to claim 98 including a footpad on an end of said support shaft.

100. The retractor according to claim 99 including means for pivotally mounting said adjustable lifter blade on said movable retractor arm.

101. The retractor according to claim 100 in which said pivotally mounting means comprises; a lifter blade receiver coupling; a pair of hangers on said lifter blade receiver coupling; a pair of pins on said self-adjusting lifter blade engaging said hangers.

102. The retractor according to claim 89 in which said adjustable lifter blade is self-adjusting.

103. The retractor according to claim 102 including mounting means mounting said self-adjusting lifter blade so that said self-adjusting lifter blade swings freely on said movable retractor arm.

104. The retractor according to claim 103 in which said mounting means comprises a pair of hangers mounted on said movable retractor arm and a pair of pins on said self-adjusting lifter blade engaging said pair of hangers.

105. The retractor according to claim 104 in which said retractor arms have inverted T-shaped tongues on their ends for frictionally engaging C-shaped sockets on a retractor blade.

106. An intermammary artery access retractor comprising:  
a spreader member having a first blade arm and a second blade arm, said second blade arm being movable toward or away from said first blade arm;

a first blade mounted on said first blade arm;

a second blade mounted on said second blade arm;

an offset member adapted to lift said second blade relative to said first blade to lift a portion of a ribcage to provide improved access to the intermammary artery.

107. The retractor according to claim 106 in which said second blade comprises pivotally attached to said spreader member, and

angle adjusting means for adjusting the angle of retraction of said second blade; whereby said blade lifts an upper portion of the ribcage to provide improved access and visibility of the intermammary artery.

108. The retractor according to claim 106 in which said second blade has a curved throat portion and a elongated vane portion; said vane portion being tapered toward a tip.

109. The retractor according to claim 106 in which said offset member comprises an adjustable support arm attached to said spreader member for raising or lowering said second blade relative to said first blade to raise an upper portion of the ribcage to provide improved access and visibility of said intermammary artery.

110. The retractor according to claim 109 including a footpad on an end of said support arm.

111. The retractor according to claim 109 in which said adjustable support arm comprises a stanchion; and

slide member for clamping and adjustably positioning said stanchion on a table or bar and to raise or lower said stanchion to vertically adjust said second blade relative to said first blade.

112. The retractor according to claim 111 including means for pivotally mounting said second blade on said second blade arm.

113. The retractor according to claim 106 in which said second blade is self-adjusting.

114. The retractor according to claim 113 including mounting means mounting said self-adjusting second blade so that said second blade swings freely relative to said spreader member.